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First Named Inventor: **GOERS, BRIAN D.**

Application No.: **10/800,516**

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Group Art Unit **3723**

Title: **CONDITIONING DISK**

BRIEF ON APPEAL

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Dear Sir:

This is an appeal from the Office Action mailed on August 2, 2006 finally rejecting claims 1-12, 23, 25-30, in light of the Notice of Panel Decision from Pre-Appeal Brief Review sent March 7, 2007. A Request for Extension of Time under 37 CFR § 1.136(a) is enclosed.

☐ Please charge the fee provided in 37 CFR § 41.20(b)(2) to Deposit Account No. 13-3723. One copy of this sheet marked duplicate is also enclosed.

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A Notice of Appeal in this application was sent by facsimile on January 3, 2007, and was received in the USPTO on January 3, 2007.

Appellants request the opportunity for a personal appearance before the Board of Appeals to argue the issues of this appeal. The fee for the personal appearance will be timely paid upon receipt of the Examiner's Answer.

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REAL PARTY IN INTEREST

The real party in interest is 3M Company of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

STATUS OF CLAIMS

Claims 1-12, 23, and 25-30 are pending.

Claims 13-22 and 24 have been withdrawn as directed to a non-elected species.

Claims 1-12, 23, and 25-30 stand finally rejected.

Claims 1-12, 23, and 25-30 are the claims on appeal.

STATUS OF AMENDMENTS

No amendments have been filed after the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

The claims at issue concern an abrasive article, for example, an abrasive conditioning disk for conditioning a pad used in the corrosive environment of a chemical mechanical polishing (CMP) process for finishing semiconductor wafers. Abrasive conditioning disks should be sufficiently rigid to provide a consistent and uniform surface for conditioning the pad. Abrasive conditioning disks should also be corrosion resistant when contacted with aqueous fluids used in the CMP process. Such fluids may be highly acidic or alkaline, and may additionally contain chemical species that can cause corrosion of the conditioning disk, particularly when the conditioning disk comprises non-alloyed ferrous metals such as iron and steel.

More particularly and referring to the specification of Appellant's pending application (see e.g. FIGs. 3, 6 and 7 and the specification at page 8, lines 22-31 and page 9, lines 5-17), independent claim 1 provides an embodiment of a conditioning disk (2 in FIGs. 1-2) comprising a substrate (4 in FIGs. 1-2, 12 in FIG. 3) having top and bottom surfaces (6a and 6b in FIG. 2, 4a and 4b in FIG. 5), a plurality of abrasive particles (6 in FIGs. 1-6 and see e.g. specification at page 3, lines 12-29) arranged on at least a portion of the top substrate surface and affixed to the substrate 12 (4 in FIGs. 1-2, 12 in FIG. 3) with a matrix material (8 in FIGs. 1-6 and see e.g. specification at page 7, line 15 to page 8, line 21), and a carrier (14 in FIG. 3, 20 in FIGs. 6-7) comprising at least one of synthetic plastic or ceramic (see e.g. specification at page 4, lines 25-31) affixed to the bottom substrate surface (see e.g. specification at page 9, lines 8-12).

More particularly and referring to the specification of Appellant's pending application (see e.g. FIGs. 1-7 and the specification at page 8, lines 22-31 and page 9, lines 5-17), independent claim 23 provides an embodiment of a conditioning disk (2 in FIGs. 1-2) comprising a substrate (4 in FIGs. 1-2, 12 in FIG. 3) having top and bottom surfaces (6a and 6b in FIG. 2, 4a and 4b in FIG. 5), a plurality of abrasive particles (6 in FIGs. 1-6 and see e.g. specification at page 3, lines 12-29) arranged on at least a portion of the top substrate surface and affixed to the substrate 12 (4 in FIGs. 1-2, 12 in FIG. 3) with an electroplated metal (see e.g. specification at page 2, lines 6-9), and a carrier (14 in FIG. 3, 20 in FIGs. 6-7) comprising at least one of synthetic plastic or ceramic (see e.g. specification at page 4, lines 25-31) affixed to the bottom substrate surface (see e.g. specification at page 9, lines 8-12).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

I. FIRST GROUND OF REJECTION:

Claims 1 and 2 stand rejected under 35 USC § 102(e) as purportedly anticipated and unpatentable over Gurusamy et al. (US 6,361,423 B2).

II. SECOND GROUND OF REJECTION:

Claims 1-12, 23 and 25-30 stand rejected under 35 USC § 103(a) as purportedly obvious and unpatentable over the combined teachings of Sung (US 6,679,243 B2) in view of Gurusamy et al. (US 6,361,423 B2).

ARGUMENT

I. First Ground of Rejection: Claims 1 and 2 stand rejected under 35 USC § 102(e) as purportedly anticipated and unpatentable over Gurusamy et al. (US 6,361,423 B2).

Appellant respectfully contends that the Examiner erred in rejecting claims 1 and 2 under 35 USC § 102(e) as purportedly anticipated and unpatentable over the teachings of Gurusamy et al. (US 6,361,423). In order to support an anticipation rejection under 35 U.S.C. 102(e), it is well established that a prior art reference must disclose each and every element of a claim. This well known rule of law is commonly referred to as the “all-elements rule.”¹ If a prior art reference fails to disclose any element of a claim, then rejection under for anticipation is improper.² Appellant respectfully disagrees with the rejections of the claims for purported anticipation under 35 U.S.C. 102(e) over Gurusamy et al., as the Examiner has not met the burden of establishing that Gurusamy discloses all elements of Appellant’s independent claim 1 and dependent claim 2.

A. Independent claim 1 and dependent claim 2 are directed to a conditioning disk comprising a substrate, a plurality of abrasive particles, and a carrier comprising at least one of synthetic plastic or ceramic affixed to a bottom surface of the substrate.

Appellant’s pending claims are listed in the Claims Appendix. Appellant’s independent claim 1 reads:

1. A conditioning disk comprising a substrate, a plurality of abrasive particles, and a carrier, wherein:
said substrate has top and bottom surfaces;
said plurality of abrasive particles is arranged on at least a portion of said top substrate surface, said abrasive particles being affixed to said substrate with a matrix material; and
said carrier is affixed to said bottom substrate surface, wherein said carrier comprises at least one of synthetic plastic or ceramic.

¹ See *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (CAFC 1986) (“it is axiomatic that for prior art to anticipate under 102 it has to meet every element of the claimed invention”).

² *Id.* See also *Lewmar Marine, Inc. v. Barient, Inc.* 827 F.2d 744, 3 USPQ2d 1766 (CAFC 1987); *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (CAFC 1990); *C.R. Bard, Inc. v. MP Systems, Inc.*, 157 F.3d 1340, 48 USPQ2d 1225 (CAFC 1998); *Oney v. Ratliff*, 182 F.3d 893, 51 USPQ2d 1697 (CAFC 1999); *Apple Computer, Inc. v. Articulate Systems, Inc.*, 234 F.3d 14, 57 USPQ2d 1057 (CAFC 2000).

- B. With respect to claims 1 and 2, the Examiner has failed to show how Gurusamy et al. discloses, describes or teaches a conditioning disk having a carrier comprising at least one of synthetic plastic or ceramic affixed to a bottom surface of the substrate as claimed by Appellant.**

Appellant respectfully contends that the Examiner has failed to meet the burden of showing by clear evidence that Gurusamy et al. discloses all elements of Appellant's claimed invention. Appellant further contends that the Examiner has not met the burden of showing by clear evidence that Gurusamy et al. discloses a conditioning disk comprising a carrier affixed to the bottom substrate surface, and further, that the Examiner has failed to meet the burden of showing that Gurusamy et al. discloses that the carrier comprises at least one of synthetic plastic or ceramic.

The Examiner, in the Office Action mailed August 2, 2006, alleged that Gurusamy et al. discloses a conditioning disk comprising a substrate 82, a plurality of abrasive particles, and a carrier 158.³ The Examiner further alleged that Gurusamy et al. teaches that the carrier 158 comprises at least one of synthetic plastic (such as PET or polyethylene terephthalate) or ceramic.⁴ Appellant respectfully submits that both allegations are incorrect and are not supported by evidence within the Gurusamy et al. disclosure.

Appellant contends that it was clear error for the Examiner to allege that element 158 as disclosed by Gurusamy et al. is a carrier in a conditioning disk. Gurusamy et al. actually discloses that element 158 is an "optional removable disk holder" that is part of the end effector 80 of conditioner head 60 of the polishing apparatus 10.⁵ Element 158 is thus a component of the polishing apparatus, not the conditioning disk as Appellant claims. Clear evidence that element 158 is part of the polishing apparatus 10 and not part of the conditioning disk is provided by Gurusamy et al.'s Brief Description of the Drawings and FIGs. 4, 7A and 9.⁶

In the Brief Description of the Drawings, Gurusamy et al. clearly discloses that "FIG. 9 is a perspective view of a conditioning disk of FIG. 4." As clearly shown by FIG. 9, the

³ Office Action mailed August 2, 2006, ¶ 9 (citing US Pat. No. 6,361,423 at column 9, lines 45 through column 11, line 60.).

⁴ *Id.*

⁵ US Pat. No. 6,361,423 B2 at column 6, lines 56-61; column 7, lines 52-60; and column 9, lines 48-50.

⁶ US Pat. No. 6,361,423 B2 at column 6, lines 44-45.

conditioning disk does not show element 158 or any structure that could even be interpreted as element 158:

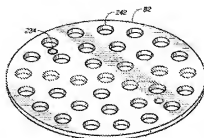


FIG. 9

82 = DISK

234 = BORES

242 = HOLES

Thus, as disclosed by Gurusamy et al. and contrary to the Examiner's assertion, element 158 is not part of the conditioning disk. Gurusamy et al. thus does not disclose or teach Appellant's claimed conditioning disk.

In fact, Appellant contends that Gurusamy et al. actually discloses that element 158 is part of the polishing apparatus 10 of FIG. 1, not part of the conditioning disk. In the Brief Description of the Drawings, Gurusamy et al. discloses that "FIG. 7A is a top perspective view of a disk holding member of the end effector of the conditioner head of FIGs. 3A and 3B."⁷ FIG. 7A, reproduced below, clearly references element 158 as corresponding to the disk holder, which is separate and distinct from the conditioning disk of FIG. 9:

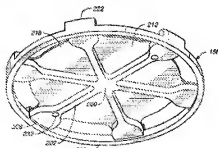


FIG. 7A

158 = DISK HOLDER

200 = CENTRAL CORE

202 = RADIALY-EXTENDING SPOKES

208 = RELATIVELY WIDE SECTION

210 = OUTER PERIMETER RIM

212 = WEB

218 = OUTBOARD EDGE

222 = PROJECTION

232 = DRIVE PIN

⁷ US Pat. No. 6,361,423 B2 at column 6, lines 35-36.

Gurusamy clearly discloses that both the disk holding member 158 and the end effector 80 are components of the conditioner head 60, not part of the conditioning disk.⁸ Appellant therefore respectfully contends that the disclosure of Gurusamy et al. falls short of disclosing a conditioning disk comprising a carrier even if we adopt, *arguendo*, the Examiner's view that element 158 is a carrier.

Furthermore, Gurusamy et al.'s disclosure that disk holding member 158 and/or backing element (optional removable disk holder 156) may comprise PET is not an explicit disclosure that Gurusamy's conditioning disk 80 comprises at least one of a synthetic plastic or ceramic.⁹ Gurusamy et al. discloses that the "optional removable disk holder 158 may intervene between the disk and the backing element" (emphasis added).¹⁰ This statement acknowledges that optional removable disk holder 158 is a separate element from the backing element 156 and the conditioning disk 82. Thus, even if the backing element 156 and the optional removable disk holder 158 were made of PET (a synthetic plastic), Gurusamy et al. would still not disclose that conditioning disk 82 comprises at least one of a synthetic plastic or ceramic, as Appellant claims.

C. At least because the Examiner has not shown that Gurusamy et al. discloses all elements of Appellant's claimed invention, claims 1 and 2 are novel and patentable over Gurusamy et al.

Appellants respectfully submit that the Examiner at least has not met the burden of showing that Gurusamy et al. discloses a conditioning disk comprising a carrier affixed to the bottom substrate surface, and further, that the Examiner has failed to meet the burden of showing that Gurusamy et al. discloses that the carrier comprises at least one of synthetic plastic or ceramic.

For all of the foregoing reasons, the Examiner has failed to meet the evidentiary burden of establishing by clear evidence that Gurusamy et al. discloses all elements of Appellant's independent claim 1 and dependent claim 2. For at least these reasons, the rejection of claims 1

⁸ US Pat. No. 6,361,423 B2 in FIG. 3B and FIG. 4, in the Brief Description of the Drawings, and at column 7, line 52 through column 8, line 56.

⁹ US Pat. No. 6,361,423 B2 in FIG. 7A and at column 11, lines 23-25.

¹⁰ US Pat. No. 6,361,423 B2 at column 9, lines 48-50.

and 2 for purported lack of novelty over Gurusamy et al. under 35 U.S.C. § 102(e) is clearly erroneous, and should be reversed by the Board of Patent Appeals and Interferences.

II. Second Ground of Rejection: Claims 1-12, 23 and 25-30 stand rejected under 35 USC § 103(a) as purportedly obvious and unpatentable over the combined teachings of Sung (US 6,679,243 B2) in view of Gurusamy et al. (US 6,361,423 B2).

Appellant respectfully contends that the Examiner erred in rejecting claims 1-12, 23, and 25-30 under 35 USC § 103(a) as purportedly obvious and unpatentable over the combined teachings of Sung (US 6,679,243 B2) in view of Gurusamy et al. (US 6,361,423). It is well-established that in making a determination of obviousness, the Patent Office must consider the subject matter as a whole¹¹, and that all the claim limitations must be taught or suggested by the prior art.¹² In view of these requirements, Appellant respectfully contends that it was error for the Examiner to reject the claims for purported obviousness under 35 U.S.C. 103(a) over the combination of Sung in view of Gurusamy et al., as the Office has failed to meet its burden of establishing a *prima facie* case of obviousness in view of the prior art.¹³

A *prima facie* case of obviousness requires the Office to establish:¹⁴

1. identification of a motivation to combine/modify the cited references;
2. a showing that the proposed combination provides a reasonable expectation of success; and
3. a teaching or suggestion of all of the claim limitations.

Appellant respectfully disagrees with the rejections of the claims for purported obviousness under 35 U.S.C. 103(a) over Gurusamy et al. in view of Sung, as the Examiner has not met the burden of establishing a proper case of *prima facie* obviousness, at least by failing to establish that the combination of Sung and Gurusamy et al. actually teaches or suggests all of the limitations of Appellant's claims, and further, that the Examiner has failed to meet the burden of showing a proper motivation to combine Sung and Gurusamy et al. and a likelihood of success in obtaining Appellant's claimed invention by such combination.

¹¹ See e.g., *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985).

¹² See e.g., *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

¹³ See MPEP § 2142

¹⁴ M.P.E.P. § 2143.

A. Claims 1-12, 23, and 25-30 are directed to a conditioning disk comprising a substrate, a plurality of abrasive particles, and a carrier comprising at least one of synthetic plastic or ceramic affixed to a bottom surface of the substrate.

Independent claim 1, from which claims 2-12 depend, and independent claim 23, from which dependent claims 25-30 depend, each recite limitations to a conditioning disk including a carrier comprising at least one of synthetic plastic or ceramic affixed to the bottom substrate surface. Appellant respectfully notes that Appellant's independent claim 23 is related to claim 1 with replacement of "with a matrix material" by "with an electroplated metal:"

23. A conditioning disk comprising a substrate, a plurality of abrasive particles, and a carrier, wherein:
said substrate has top and bottom surfaces;
said plurality of abrasive particles is arranged on at least a portion of said top substrate surface, said abrasive particles being affixed to said substrate with an electroplated metal; and
said carrier is affixed to said bottom substrate surface, wherein said carrier comprises at least one of synthetic plastic or ceramic.

B. With respect to claims 1-12, 23, and 25-30, the Examiner has not met the burden of showing how the combination of references describes, teaches or suggests a conditioning disk comprising a carrier as claimed by Appellant.

Appellant respectfully contends that the Examiner has failed to meet the burden of showing by clear evidence that the combination of Gurusamy et al. and Sung describes, teaches or suggests all elements of Appellant's independent claims. In particular, Appellant respectfully contends that the Examiner has not met the burden of showing by clear evidence that Gurusamy et al. in view of Sung describes, teaches or suggests a conditioning disk comprising a carrier affixed to the bottom substrate surface, and further, that the Examiner has failed to meet the burden of showing that the combination of references describes, teaches or suggests that the carrier comprises at least one of synthetic plastic or ceramic.

The Examiner alleges that Sung discloses a conditioning disk comprising a carrier, and further alleges that Sung only fails to teach that the carrier comprises at least one of a synthetic plastic or ceramic.¹⁵ Appellant respectfully disagrees. Appellant respectfully contends that the Examiner has not shown that Sung provides a disclosure or teaching of a conditioner disk

comprising a carrier at all. In fact, in none of the prior Office Actions has the Examiner stated on the record precisely where Sung discloses a carrier that is part of a conditioning disk as Appellant's claim, nonetheless a carrier comprising ceramic or plastic. Although the Examiner cites to Example 18 in Sung¹⁶, Appellant cannot find even a single reference to the term "carrier" within Example 18 or the entire Sung disclosure, or any equivalent structure to Appellant's carrier that is part of the superabrasive tool described in Sung.

With respect to Example 18, Sung discloses that "[in] this example, single layer diamonds are brazed directly onto the substrate for making a pad conditioner." (emphasis added)¹⁷ Sung then describes forming a layer of malleable dough comprising LM powder (a metal braze alloy powder) and an acrylic binder, and planting 80/90 mesh diamond grits into the sheet of dough guided by a template.¹⁸ Sung then describes trimming the sheet and gluing the sheet using an organic binder to a flat stainless steel plate.¹⁹ "The assembly is then heated in vacuum to 1010°C for 10 minutes."²⁰ "The heating caused the LM to melt and bond to the substrate." (emphasis added)²¹ Appellant respectfully contends that the flat stainless plate is the only structure described in Example 18 that could correspond to the substrate onto which the diamonds are directly brazed taught by Sung is the flat stainless steel plate.

Appellant therefore respectfully submits that Sung Example 18 teaches forming a conditioning disk by brazing diamonds onto a substrate (the flat stainless steel plate) with a matrix comprising a metal brazing powder combined with an organic binder. Appellant further submits that the Examiner has not shown that Sung provides any teaching or suggestion of a metal carrier affixed to the bottom substrate surface, since the only metals described in Example 18 of Sung are the LM (metal brazing powder), and the substrate (flat stainless steel plate). Therefore, the Examiner has not met the burden of showing by clear evidence that Sung

¹⁵ Office Action mailed August 2, 2006, ¶ 9 (*citing* US Pat. No. 6,679,243 B2.).

¹⁶ Office Action mailed August 2, 2006, ¶ 6 (*citing* US Pat. No. 6,679,243 B2.).

¹⁷ US Pat. No. 6,679,243 B2, Example 18, at column 25, lines 60-62.

¹⁸ *Id.* at column 25, line 62 to column 26, line 2.

¹⁹ *Id.* at column 26, lines 3-4.

²⁰ *Id.* at column 26, lines 4-5.

²¹ *Id.* at column 26, lines 5-6.

describes, teaches or suggests a conditioning disk comprising a carrier affixed to the bottom substrate surface.

Moreover, even if, *arguendo*, Sung disclosed a conditioning disk comprising a carrier, the Examiner has admitted that Sung provides no teaching or suggestion of a carrier comprising at least one of a synthetic plastic or ceramic. Instead, the Examiner relies upon Gurusamy et al.'s teaching of a backing element 156 or removable disk holder 158 made of PET (a synthetic plastic) to provide this missing claim element. However, as noted in the argument submitted in response to the first ground of rejection *supra*, Gurusamy et al.'s disclosure of a PET backing element 156 or PET removable disk holder 158 is not a teaching of a conditioning disk comprising a carrier made of PET. This is made clear by FIG. 9 of Gurusamy et al., which is described in the Brief Description of the Drawings as "a perspective view of a conditioning disk of FIG. 4" (emphasis added), and which nowhere illustrates or identifies backing element 156 or removable disk holder 158 as part of conditioning disk 82.²² Appellant therefore contends that the Examiner has failed to meet the burden of establishing a proper case of *prima facie* obviousness, by failing to establish by clear evidence on the record that the combination of references teaches or suggests all limitations of the Appellant's claims.

C. In addition, the Examiner has failed to establish a proper motivation to combine Sung Gurusamy et al., and has failed to demonstrate a reasonable expectation of success in obtaining Appellant's claimed invention from such a combination.

Appellant also contends that the Examiner has not established a proper motivation to combine the cited references, and further, has failed to demonstrate a reasonable expectation of success in obtaining Appellant's claimed invention from the combination of references. In setting forth an obviousness rejection, one cannot "simply engage in a hindsight reconstruction of the claimed invention, using the Appellant's structure as a template and selecting elements from references to fill the gaps."²³ Further, both the suggestion for combining the teachings of the prior art to make the invention and the reasonable likelihood of its success must be founded in the prior art and not in the teachings of Appellant's own disclosure.²⁴

²² US Pat. No. 6,361,423 B2 at column 6, lines 44-45.

²³ *In re Gorman*, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

²⁴ *In re Dow Chem.*, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988).

Here, the Examiner has not met the burden of establishing on the record a clear motivation to use Sung's superabrasive tool with the purported carrier of Gurusamy et al. (i.e. the "optional removable disk holder" that is part of the end effector 80 of conditioner head 60 of the polishing apparatus 10). The Examiner has provided no evidence that one skilled in the art would use a superabrasive disk, as described by Sung, with the removable disk holder 158 as disclosed taught by Gurusamy et al. Appellants respectfully contend that Gurusamy et al.'s disk holder 158, which is part of the polishing apparatus, would make unnecessary a carrier fixed to the Gurusamy et al. conditioning disk to facilitate rigid mounting of the conditioning disk to the polishing apparatus. Thus, the Examiner has not met the burden of establishing a proper motivation within the cited references for one skilled in the art to seek to combine the alleged metal carrier of Sung with the conditioning disk 82 of Gurusamy et al.

Moreover, even if, *arguendo*, such a combination were made, Appellant respectfully contends that the resulting conditioning disk, when viewed in light of the entire disclosures of Sung and Gurusamy et al., would necessarily have two different elements described as substrates (i.e. the flat stainless steel plate substrate as described in Sung Example 18, and the disk 82 of FIG. 9 of Gurusamy et al.), with abrasive particles adhered to the top surfaces of both substrates. Appellant respectfully contends that this ambiguity between the disclosures of Sung and Gurusamy et al. makes it unclear to one skilled in the art which substrate's top and bottom surfaces are used to construct Applicant's claimed invention. Appellant therefore respectfully contends that the combination of Sung with Gurusamy et al., when viewed in light of all that the references disclose, would not allow one skilled in the art to have a reasonable expectation of success in deriving Appellant's claimed invention. Appellant therefore respectfully submits that the Examiner at least has failed to meet the burden of showing a proper motivation to combine Sung and Gurusamy et al, and further, has failed to demonstrate a reasonable expectation of success in combining those references to obtain Appellant's claimed invention.

D. At least because the Examiner has not shown that the combination of Sung and Gurusamy et al. teaches or suggests all elements of Appellant's claimed invention, claims 1-12, 23 and 25-30 are nonobvious and patentable over Sung in view of Gurusamy et al.

Appellant respectfully submits that the Examiner at least has failed to establish a proper case of *prima facie* obviousness by failing to establish that the combination of Sung and Gurusamy et al. actually teaches or suggests a conditioning disk including a carrier comprising at least one of synthetic plastic or ceramic affixed to the bottom substrate surface. Furthermore, Appellant respectfully submits that the Examiner also has failed to meet the burden of showing a proper motivation to combine Sung and Gurusamy et al, and a likelihood of success in combining those references to successfully obtain Appellant's claimed invention. For at least these reasons, Appellant respectfully contends that clear errors exist in the rejection of independent claims 1 and 23 under 35 U.S.C. §103(a) in view of the combination of Sung and Gurusamy et al. The rejection of independent claims 1 and 23 for purported obviousness over Sung in view of Gurusamy et al. under 35 U.S.C. § 103(a) is therefore improper, and must be reversed.

In addition, dependent claims 2-12, and 25-30 each depend from independent claims 1 and 23, respectively. Appellant submits that a dependent claim should be allowed when its parent claim is allowed.²⁵ Thus, Appellant submits that claims 2-12 and 25-30 are each allowable upon allowance of independent claims 1 and 23.

For all of the foregoing reasons, the Examiner has failed to meet the evidentiary burden of establishing by clear evidence that the combination of Sung with Gurusamy et al. makes obvious Appellant's claims 1-12, 23 and 25-30. For at least these reasons, the rejection of claims 1-12, 23 and 25-30 for purported obviousness over Sung in view of Gurusamy et al. under 35 U.S.C. § 103(a) is clearly erroneous, and should be reversed by the Board of Patent Appeals and Interferences.

²⁵ *In re McCarn*, 101 USPQ 411 (CCPA 1954).

CONCLUSION

For at least the foregoing reasons, Appellant respectfully requests that the Board of Patent Appeals and Interferences review and reverse the final rejections of claims 1 and 2 under 35 U.S.C. § 102(e), and claims 1-12, 23, and 25-30 under 35 U.S.C. §103(a), in the above-identified application. Appellant also respectfully requests that a Board Decision allowing all pending claims in the application be issued.

6/07/07

Date

Respectfully submitted,

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Office of Intellectual Property Counsel
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CLAIMS APPENDIX

1. (previously presented) A conditioning disk comprising a substrate, a plurality of abrasive particles, and a carrier, wherein:

said substrate has top and bottom surfaces;

said plurality of abrasive particles is arranged on at least a portion of said top substrate surface, said abrasive particles being affixed to said substrate with a matrix material; and

said carrier is affixed to said bottom substrate surface, wherein said carrier comprises at least one of synthetic plastic or ceramic.

2. (original) The conditioning disk of claim 1 wherein said abrasive particles comprise at least one of aluminum oxide, cubic boron nitride, or diamond.

3. (original) The conditioning disk of claim 1 wherein said matrix material comprises at least one of aluminum, boron, carbon, chromium, tungsten, cobalt, titanium, zinc, iron, manganese, or silicon.

4. (original) The conditioning disk of claim 1 further comprising a corrosion resistant powder.

5. (original) The conditioning disk of claim 1 wherein said substrate is formed of said matrix material.

6. (original) The conditioning disk of claim 1 wherein said substrate is more flexible than said carrier.

7. (original) The conditioning disk of claim 1 wherein said carrier is affixed to said substrate with an adhesive.

8. (original) The conditioning disk of claim 1 wherein said abrasive particles are arranged in a predetermined pattern.

9. (original) The conditioning disk of claim 1 wherein said matrix material comprises a brazing alloy.

10. (original) The conditioning disk of claim 9 wherein said abrasive particles are diamond and said brazing alloy comprises at least one of chromium, tungsten, cobalt, titanium, zinc, iron, manganese, or silicon.

11. (original) The conditioning disk of claim 9 wherein said abrasive particles are cubic boron nitride and said brazing alloy comprises at least one of aluminum, boron, carbon, or silicon.

12. (original) The conditioning disk of claim 9 wherein said abrasive particles are aluminum oxide and said brazing alloy comprises at least one of aluminum, boron, carbon, or silicon.

13. (withdrawn) A conditioning disk comprising:
a substrate having top and bottom surfaces;
a plurality of abrasive particles arranged on at least a portion of said top substrate surface, said abrasive particles affixed to said substrate with a matrix material; and
a polycarbonate carrier affixed to said bottom substrate surface.

14. (withdrawn) The conditioning disk of claim 13 wherein said abrasive particles comprise at least one of aluminum oxide, cubic boron nitride, or diamond.

15. (withdrawn) The conditioning disk of claim 13 wherein said matrix material comprises at least one of aluminum, boron, carbon, chromium, tungsten, cobalt, titanium, zinc, iron, manganese, or silicon.

16. (withdrawn) The conditioning disk of claim 13 further comprising a corrosion resistant powder.

17. (withdrawn) The conditioning disk of claim 13 wherein said carrier is affixed to said substrate with an adhesive.

18. (withdrawn) The conditioning disk of claim 13 wherein said abrasive particles are arranged in a predetermined pattern.

19. (withdrawn) The conditioning disk of claim 13 wherein said matrix material comprises a brazing alloy.

20. (withdrawn) The conditioning disk of claim 19 wherein said abrasive particles are diamond and said brazing alloy comprises at least one of chromium, tungsten, cobalt, titanium, zinc, iron, manganese, or silicon.

21. (withdrawn) The conditioning disk of claim 19 wherein said abrasive particles are cubic boron nitride and said brazing alloy comprises at least one of aluminum, boron, carbon, or silicon.

22. (withdrawn) The conditioning disk of claim 19 wherein said abrasive particles are aluminum oxide and said brazing alloy comprises at least one of aluminum, boron, carbon, or silicon.

23. (previously presented) A conditioning disk comprising a substrate, a plurality of abrasive particles, and a carrier, wherein:

said substrate has top and bottom surfaces;

said plurality of abrasive particles is arranged on at least a portion of said top substrate surface, said abrasive particles being affixed to said substrate with an electroplated metal; and

said carrier is affixed to said bottom substrate surface, wherein said carrier comprises at least one of synthetic plastic or ceramic.

24. (withdrawn) The conditioning disk of claim 23 wherein said carrier comprises polycarbonate.

25. (original) The conditioning disk of claim 23 wherein said abrasive particles comprise at least one of aluminum oxide, cubic boron nitride, or diamond.

26. (original) The conditioning disk of claim 23 wherein said electroplated metal comprises nickel.

27. (original) The conditioning disk of claim 26 wherein said abrasive particles are diamond.

28. (original) The conditioning disk of claim 23 wherein said substrate is formed of said electroplated metal.

29. (original) The conditioning disk of claim 23 wherein said carrier is affixed to said substrate with an adhesive.

30. (original) The conditioning disk of claim 23 wherein said abrasive particles are arranged in a predetermined pattern.

EVIDENCE APPENDIX

NONE.

RELATED PROCEEDINGS APPENDIX

None.